PRVD2009-09

Proposed Re-evaluation Decision

Alkyl Trimethylenediamines Cluster (ATMD)

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Publications
Pest Management Regulatory Agency
Health Canada
2720 Riverside Drive
A.L. 6605C
Ottawa, Ontario
K1A 0K9

Internet: pmra_publications@hc-sc.gc.ca
healthcanada.gc.ca/pmra
Facsimile: 613-736-3758
Information Service:
1-800-267-6315 or 613-736-3799
pmra_infoserv@hc-sc.gc.ca

Canada

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Overview

What Is the Proposed Re-evaluation Decision?

After a re-evaluation of the biocide Alkyl Trimethylenediamines (ATMD) Cluster, Health Canada's Pest Management Regulatory Agency (PMRA), under the authority of the *Pest Control Products Act* and Regulations, is proposing continued registration for the sale and use of products containing ATMD in Canada.

An evaluation of available scientific information found that products containing ATMD do not present unacceptable risks to human health or the environment when used according to label directions. As a condition of the continued registration of ATMD uses, new risk-reduction measures must be included on the labels of all products. Additional data are being requested as a result of this re-evaluation.

This proposal affects all end-use products containing ATMD registered in Canada. Once the final re-evaluation decision is made, the registrants will be instructed on how to address any new requirements.

For ATMD end-use products that contain more than one active ingredient under re-evaluation, registration status might change as a result of the re-evaluation of the remaining affected active ingredients.

This Proposed Re-evaluation Decision is a consultation document[1] that summarizes the science evaluation for ATMD and presents the reasons for the proposed re-evaluation decision. It also proposes additional risk-reduction measures to further protect human health and the environment.

The information is presented in two parts. The Overview describes the regulatory process and key points of the evaluation, while the Science Evaluation provides detailed technical information on the assessment of ATMD.

The PMRA will accept written comments on this proposal up to 45 days from the date of publication of this document. Please forward all comments to Publications (please see contact information indicated on the cover page of this document).

What Does Health Canada Consider When Making a Re-evaluation Decision?

The PMRA's pesticide re-evaluation program considers potential risks, as well as value, of pesticide products to ensure they meet modern standards established to protect human health and the environment. Regulatory Directive DIR2001-03, *PMRA Re-evaluation Program*, presents the details of the re-evaluation activities and program structure.

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[1] "Consultation statement" as required by subsection 28(2) of the *Pest Control Products Act*.

The ATMD cluster, a group of active ingredients in the current re-evaluation cycle, has been re-evaluated under Re-evaluation Program 1. This program relies as much as possible on foreign reviews, typically United States Environmental Protection Agency (USEPA) Reregistration Eligibility Decision (RED) documents. For products to be re-evaluated under Program 1, the foreign review must meet the following conditions:

- it covers the main science areas, such as human health and the environment, that are necessary for Canadian re-evaluation decisions;
- it addresses the active ingredient and the main formulation types registered in Canada; and
- it is relevant to registered Canadian uses.

Given the outcome of foreign reviews and a review of the chemistry of Canadian products, the PMRA will propose a re-evaluation decision and appropriate risk-reduction measures for Canadian uses of an active ingredient. In this decision, the PMRA takes into account the Canadian use pattern and issues (for example, the federal Toxic Substances Management Policy).

Based on the health and environmental risk assessments published in the 2007 RED, the USEPA concluded that ATMD was eligible for reregistration provided risk-reduction measures were adopted. The PMRA compared the American and Canadian use patterns and found the USEPA assessments described in this RED were an adequate basis for the proposed Canadian re-evaluation decision.

For more details on the information presented in this overview, please refer to the Science Evaluation of this consultation document.

What Are Alkyl Trimethylenediamines?

Substances in the ATMD cluster include: N-alkyl-1,3 propanediamine monobenzoate; 1-alkyl-amino-3-aminopropane; and N-alkyl-1,3 propanediamine acetate. These are registered in Canada under the authority of the *Pest Control Products Act* as slimicides and/or material preservatives for use in the following industrial process fluids: oil field (including oilfield/petrochemical water injection systems; secondary oil production; well completions, workover and stimulation fluids; petroleum transport, storage systems and surface equipment); industrial re-circulating cooling water systems; and pulp and paper mills.

Health Considerations

Can Approved Uses of ATMD Affect Human Health?

ATMD is unlikely to affect your health when used according to the revised label directions.

People could be exposed to ATMD through handling the biocide and when contacting treated materials in pulp and paper mills. The USEPA considered substances in the ATMD cluster as low exposure chemicals due to the nature of the use patterns. The USEPA concluded that ATMD was unlikely to affect human health provided that risk-reduction measures were implemented. These conclusions apply to the Canadian situation, and equivalent risk-reduction measures are required.

Environmental Considerations

What Happens When ATMD Is Introduced into the Environment?

ATMD is unlikely to affect non-target organisms when used according to the revised label directions.

Certain aquatic organisms could be exposed to ATMD in the environment. The USEPA concluded that the reregistration of ATMD was acceptable provided risk-reduction measures to further protect the environment were implemented. These conclusions apply to the Canadian situation, and equivalent risk-reduction measures are required.

Measures to Minimize Risk

Labels of registered pesticide products include specific instructions for use. Directions include risk-reduction measures to protect human and environmental health. These directions must be followed by law. As a result of the re-evaluation of ATMD, the PMRA is proposing further risk-reduction measures for product labels.

Human Health

- Closed delivery systems and additional protective equipment to protect handlers

Environment

- Additional advisory label statements to reduce potential aquatic system contamination

What Additional Scientific Information Is Required?

Data are required as a condition of continued registration under section 12 of the *Pest Control Products Act*. The registrant of the active ingredient must provide these data or an acceptable scientific rationale to the PMRA within the timeline specified in the decision letter. Appendix I lists all data requirements.

Next Steps

Before making a final re-evaluation decision on ATMD, the PMRA will consider all comments received from the public in response to this consultation document. The PMRA will then publish a Re-evaluation Decision[2] that will include the decision, the reasons for it, a summary of comments received on the proposed decision and the PMRA's response to these comments.

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2 "Decision statement" as required by subsection 28(5) of the *Pest Control Products Act*.

Science Evaluation

1.0 Introduction

Substances in the Alkyl Trimethylenediamines (ATMD) cluster are registered in Canada as biocides for use in oil field (including oilfield/petrochemical water injection systems; secondary oil production; well completions, work over and stimulation fluids; petroleum transport, storage systems and surface equipment); industrial re-circulating cooling water systems; and pulp and paper mills.

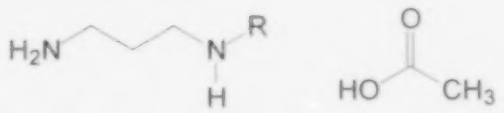
Following the re-evaluation announcement for ATMD, the Canadian registrants indicated that they intended to provide continued support for all uses included on the labels of the end-use products in Canada.

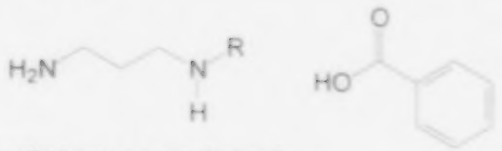
The PMRA used recent assessments of ATMD from the United States Environmental Protection Agency (USEPA). The USEPA Reregistration Eligibility Decision (RED) document for ATMD, dated September, 2007, as well as other information on the regulatory status of ATMD in the United States can be found on the USEPA Pesticide Registration Status page at http://www.epa.gov/pesticides/reregistration/status.htm.

2.0 The Technical Grade Active Ingredient, Its Properties and Uses

2.1 Identity of the Technical Grade Active Ingredient

Common name	1-alkyl C6-C18 1,3-propane diamine
Function	Microbiocide
Chemical Family	Alkyl amino propane
Chemical name	
1 **International Union of Pure and Applied Chemistry (IUPAC)**	1-alkyl-amino-3-aminopropane
2 **Chemical Abstracts Service (CAS)**	Amines, N-coco alkyltrimethylenedi-
CAS Registry Number	61791-63-7
Molecular Formula	Not available
Structural Formula	 R = alkyl groups as derived from coconut oil fatty acids

Molecular Weight	Not available
Purity of the Technical Grade Active Ingredient	100% minimum
Registration Number	18062
Common name	1-alkyl (C8-C18) 1,3-propane diamine acetate
Function	Microbiocide
Chemical Family	Alkyl amino propane
Chemical name	
1 **International Union of Pure and Applied Chemistry (IUPAC)**	N-alkyl-1,3 propanediamine acetate
2 **Chemical Abstracts Service (CAS)**	N-coco alkyltrimethylenediamines acetates
CAS Registry Number	61791-64-8
Molecular Formula	Not available
Structural Formula	 R = alkyl groups as derived from coconut oil fatty acids
Molecular Weight	Not available
Purity of the Technical Grade Active Ingredient	Not applicable, no registered technical
Registration Number	Technical grade active ingredient not currently registered

Common name	N-coco-alkyltrimethylene diamines present as monobenzoate salt
Function	Microbiocide
Chemical Family	Alkyl amino propane
Chemical name	
1 **International Union of Pure and Applied Chemistry (IUPAC)**	N-alkyl-1,3 propanediamine monobenzoate
2 **Chemical Abstracts Service (CAS)**	N-coco alkyltrimethylenediamines benzoates
CAS Registry Number	68188-29-4
Molecular Formula	Not available
Structural Formula	 R = alkyl groups as derived from coconut oil fatty acids
Molecular Weight	Not available
Purity of Technical Active Ingredient	Not applicable, no registered technical
Registration Number	Technical grade active ingredient not currently registered

The product will be assessed for impurities of human health or environmental concern when the chemistry data are provided as requested (refer to Appendix I for data requirement).

2.2 Physical and Chemical Properties of the Technical Grade Active Ingredient

Not available.

2.3 Comparison of Use Patterns in Canada and the United States

As described in Section 1.0, substances in the ATMD cluster are registered in Canada as biocides for use in oil field (including oilfield/petrochemical water injection systems; secondary oil production; well completions, work over and stimulation fluids; petroleum transport, storage systems and surface equipment); industrial re-circulating cooling water systems; and pulp and paper mills.

A total of 23 end-use products associated with the ATMD cluster chemicals are currently registered in Canada, all of which are commercial class products and are formulated as liquids.

Registered products containing ATMD are listed in Appendix II. All current uses are being supported by the registrants and are, therefore, considered in the re-evaluation of ATMD.

In the United States, there were no food uses or non-occupational applications of ATMD registered at the time of the RED. All occupational applications of ATMD were made through closed delivery and loading systems. Due to the nature of the use patterns, the potential for occupational exposure was considered by the USEPA to be low. On this basis, the USEPA performed a qualitative, rather than a quantitative, risk assessment for the ATMD cluster.

The Canadian registered uses of ATMD are compared to uses in the United States. All Canadian uses are encompassed by the American use patterns with the exception of the pulp and paper mill use. In Canada, the pulp and paper mill use is considered within the same use-site category (i.e. USC 17 - Industrial Process Fluids) as oil field and industrial re-circulating cooling water systems due to similarities in exposure potential.

Therefore, it was concluded that the USEPA RED is an adequate basis for the re-evaluation of Canadian uses of ATMD.

3.0 Impact on Human Health and the Environment

In its 2007 RED, the USEPA concluded that the end-use products formulated with ATMD met the safety standard under the American *Food Quality Protection Act* and would not pose unreasonable risks or adverse effects to humans and the environment if used according to the amended product labels.

3.1 Human Health

The USEPA concluded that ATMD is acutely toxic via the oral route (Toxicity category II) and less toxic by the dermal route (Toxicity category III). ATMD is highly corrosive to eyes (Toxicity category I) and is a skin irritant (Toxicity category I). No acute inhalation or dermal sensitization data were available to the USEPA at the time of the publication of the RED.

Since no subchronic or chronic toxicity studies were submitted to the USEPA, the USEPA conducted a Structural Activity Relationship analysis and used a structurally similar chemical, N-Octyl Diacetate, to evaluate the relative toxicity of ATMD. Potential reproductive effects of this chemical were noted by the USEPA in a 13-week dermal study in rabbits. However, these effects did not occur in a dose-responsive manner. In addition, other systemic effects were also observed in the study animals, the USEPA interpreted that the effects may not be treatment related. The USEPA concluded that more data would be required if additional use patterns would be registered in the future. Due to the limited exposure potential, the USEPA did not assess the carcinogenic potential for ATMD.

The USEPA did not establish toxicity endpoints for ATMD. As described above, substances of the ATMD cluster were revaluated by the USEPA qualitatively as low exposure chemicals.

3.1.1 Impurities and Degradates/Metabolites of Toxicological Concern

The product will be assessed for impurities of human health or environmental concern when the chemistry data are provided as requested (refer to Appendix I for data requirement).

3.1.2 Occupational Exposure and Risk Assessment

Workers can be exposed to ATMD through handling the biocide and when contacting treated materials in pulp and paper mills.

3.1.2.1 Handler Exposure and Risk

The American product labels required the use of personal protective clothing and closed loading and delivery systems. The USEPA believed that these measures resulted in negligible or minimal exposure. The RED describes closed loading systems as "engineering controls that are designed to prevent human exposure and should not require human intervention to eliminate exposure." According to the USEPA, closed transfer systems that require the worker to open pour the concentrate into a transfer system are not considered under this definition of closed loading systems because the initial exposure for the open pour would require a quantitative assessment.

Negligible exposure was considered to result from the use of loading and delivering systems that are designed to drip less than 2 mL per coupling as in dry coupling or metering pumps that are closed on both sides. Minimal exposure was considered to result from closed systems that are designed to prevent or eliminate inhalation and dermal exposure level to an extent that risks are not of concern.

The USEPA concluded that no respiratory protection was required for workers handling ATMD due to its extremely low vapour pressure. However, the current labels must be revised, as appropriate, to ensure that personal protective equipment (PPE) including gloves and specified closed delivery and loading systems such as dry coupling (i.e. drips no more than 2 mL) and/or metering pumps were used. The USEPA concluded that risks were not of concern if these measures were adopted where appropriate.

Relevance to the Canadian Situation
Based on the communications between the PMRA and industry stakeholders, the predominant method of handling biocide in the Canadian industrial sector is within a closed system. However, the application method is not specified on all the Canadian product labels. Furthermore, the PPE requirements on current Canadian labels are also inconsistent. Therefore, based on the mitigation measures requested in the RED, all Canadian end-use product labels will be required to state that when handling the product:

- long pants, long sleeved shirt, shoes, socks, and chemical resistant gloves as well as goggles or face shield be worn; and

- closed loading and delivery systems such as a dry coupling and/or metering pump be used.

Although the use of ATMD in paper and pulp mills was not discussed in the RED, exposure to workers handling ATMD in paper and pulp mills would be reduced to a negligible or minimal level if the above mitigation measures are adopted and thus, risk of this use is not of concern to the PMRA.

While some of the Canadian use rates in the oil field scenario are higher than the American rates, the PMRA believes that the required mitigation measures would result in minimal exposure and would therefore provide sufficient protection.

The proposed label amendments are listed in Appendix III.

3.1.2.2 Post-application Exposure and Risk

The USEPA did not assess post-application risks to workers because no occupational post application exposure was expected based on the registered use patterns.

Relevance to the Canadian Situation
The RED adequately addressed potential post-application exposure scenarios associated with the Canadian uses of ATMD in oil field and in re-circulating cooling tower. Thus, conclusions derived from the RED are considered applicable to the Canadian situation in these use sites. For the Canadian specific use in pulp and paper mills, the PMRA deems that post-application exposure and risks to workers in pulp and paper mills are not of concern because of the extremely low volatility of the ATMD and the low concentration of the chemical in the treated substances (0.1 kg active per 1000 kg of paper/pulp, and 260 ppm active in re-circulating wash water).

No further mitigation measures are required.

3.1.3 Non-Occupational Exposure and Risk Assessment

3.1.3.1 Residential Exposure

There are no registered residential uses for ATMD in either the United States or Canada. Therefore, residential exposure is not expected, and an assessment is not required.

3.1.3.2 Exposure from Food and Drinking Water

The USEPA concluded that, based on the labelled use patterns (i.e. oil field and re-circulating cooling water towers), ATMD was not expected to contact food or contaminate drinking water sources. Therefore, dietary or drinking water assessments for ATMD were not performed.

Relevance to the Canadian Situation
The USEPA's conclusion is considered relevant to the Canadian situation.

ATMD is not expected to contact food via oil field and re-circulating cooling water tower uses. It is not expected to contact food through the pulp and paper mill use, since the label prohibits the use of the biocide in the production of paper or paperboard that will come into contact with food. Moreover, effluents of ATMD resulting from the current registered uses, including pulp and paper mills, are not anticipated to impact fresh water environments. In Canada, waste waters/effluent from industrial processes must be treated before releasing into the environment, and provincial permits are required for their discharge.

Therefore, risks from dietary exposure to the Canadian uses of ATMD are not of concern.

3.1.3.4 Aggregate Risk Assessment

Aggregate risk combines the different routes of exposure to the biocide (i.e. from food, water and residential exposures). Since no exposure from food, drinking water, and residential sources is expected for ATMD pesticide uses in either the United States or Canada, an aggregated risk assessment is not required.

3.1.4 Cumulative Effects

The USEPA has not determined whether ATMD has a common mechanism of toxicity with other substances or whether it shares a toxic metabolite produced by other substances. Therefore, it was assumed that ATMD does not share a common mechanism of toxicity with other substances and a cumulative risk assessment was not required.

3.2 Environment

3.2.1 Environmental Risk Assessment

It was reported in the RED that the ATMD compound, 1-(alkyl amino)-3-aminopropane diacetate (applied as Duomeen-C Diacetate, 51.9% a.i. in isopropanol) was hydrolytically stable under abiotic and buffered conditions over the pH 5–9 range and under abiotic and unbuffered conditions (deionized water, pH *ca.* 6.2) over a 30-day incubation period.

For the registered uses of ATMD at the time of the RED, the USEPA concluded that the potential for exposure to ecological organisms was low. Nonetheless, based on the toxicity studies on freshwater fish/invertebrates and estuarine/marine fish/invertebrates (the acute toxicity values were less than 1.0 mg/L), the USEPA required that the statement "This product is toxic to fish, aquatic invertebrates, oysters, and shrimp" must be included in the "**Environmental Hazards**" section of ATMD product labels. The RED also indicated that ATMD is toxic to birds based on an acute oral study.

The USEPA required that all labels must carry statements indicating that discharge of effluent containing ATMD into aquatic systems be prohibited unless permit requirements were met and the permitting authorities were notified in writing. For industrial water systems, the USEPA required that all labels must limit use to closed systems. Use in once-through industrial water systems was prohibited.

Relevance to the Canadian Situation

The USEPA conclusion is considered applicable to the Canadian situation. Currently, not all Canadian product labels bear appropriate environmental hazard statements. The PMRA proposes that the Canadian product labels be updated to include the statements "Toxic to aquatic organisms" and "DO NOT discharge effluent containing this product into sewer systems, lakes, streams, ponds, estuaries, oceans or other waters" in the "**Environmental Hazards**" section. In addition, the statement "Toxic to birds" should also be specified on all Canadian labels due to the acute toxicity of ATMD to avian species.

3.3 Pest Control Product Policy Considerations

3.3.1 Toxic Substances Management Policy Considerations

The management of toxic substances is guided by the federal government's Toxic Substances Management Policy, which puts forward a preventive and precautionary approach to deal with substances that enter the environment and could harm the environment or human health. The policy provides decision makers with direction and sets out a science-based management framework to ensure that federal programs are consistent with its objectives. One of the key management objectives is virtual elimination from the environment of toxic substances that result predominantly from human activity and that are persistent and bioaccumulative. These substances are referred to in the policy as Track 1 substances.

Substances in the ATMD cluster will be assessed in accordance with the PMRA Regulatory Directive DIR99-03, *The Pest Management Regulatory Agency's Strategy for Implementing the Toxic Substances Management Policy*, once the PMRA receives the required chemistry data as described in Appendix I. The technical product will be assessed against the contaminants identified in the *Canada Gazette*, Part II, Volume 139, Number 24, pages 2641–2643: *List of Pest Control Product Formulants and Contaminants of Health or Environmental Concern, Part 3 Contaminants of Health or Environmental Concern.*

3.3.2 Contaminants and Formulants of Health or Environmental Concern

Contaminants in the technical will be compared against the *List of Pest Control Product Formulants and Contaminants of Health or Environmental Concern* maintained in the *Canada Gazette*,[3] once the PMRA receives the required chemistry data as described in Appendix I. The list is used as described in the PMRA Notice of Intent NOI2005-01[4] and is based on existing policies and regulations including: DIR99-03; and DIR2006-02,[5] and taking into consideration the Ozone-depleting Substance Regulations, 1998, of the *Canadian Environmental Protection Act* (substances designated under the Montreal Protocol).

The regulation of formulants in registered pest control products identified in the list in the *Canada Gazette* are assessed on an ongoing basis through PMRA formulant initiatives and Regulatory Directive DIR2006-02.

4.0 Incidence Reports

Starting 26 April 2007, registrants are required by law to report incidents, including adverse effects to health and the environment, to the PMRA within a set time frame. Incidents are classified into six major categories including effects on humans, effects on domestic animals and packaging failure. Incidents are further classified by severity, in the case of humans for instance, from minor effects such as skin rash, headache, etc., to major effects such as reproductive or developmental effects, life-threatening conditions or death.

The PMRA will examine incident reports and, where there are reasonable grounds to suggest that the health and environmental risks of the pesticide are no longer acceptable, appropriate measures will be taken, ranging from minor label changes to discontinuation of the product.

There are no reported incidents associated with ATMD pesticide uses as of 12 February 2009.

5.0 Organisation for Economic Co-operation and Development Status of Alkyl Trimethylenediamines

Canada is part of the Organisation for Economic Co-operation and Development (OECD), which groups 30 member countries and provides governments with a setting in which to discuss, develop and perfect economic and social policies. They compare experiences, share information

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3 *Canada Gazette*, Part II, Volume 139, Number 24, pages 2641–2643: *List of Pest Control Product Formulants and Contaminants of Health or Environmental Concern* and in the order amending this list in the *Canada Gazette*, Part II, Volume 142, Number 13, pages 1611-1613. *Part 1 Formulants of Health or Environmental Concern, Part 2 Formulants of Health or Environmental Concern that are Allergens Known to Cause Anaphylactic-Type Reactions and Part 3 Contaminants of Health or Environmental Concern.*

4 NOI2005-01, *List of Pest Control Product Formulants and Contaminants of Health or Environmental Concern under the New Pest Control Products Act*.

5 DIR2006-02, *Formulants Policy and Implementation Guidance Document*

and analyses, seek answers to common problems, and work to co-ordinate domestic and international policies to allow for consistency in practices across nations.

Based on the current available information, ATMD has not been prohibited for use in any of the OECD member states.

6.0 Proposed Re-evaluation Decision

The PMRA has determined that ATMD is acceptable for continued registration with the implementation of the proposed risk-reduction measures. These measures are required to further protect human health and the environment. The labels of Canadian end-use products must be amended to include the label statements listed in Appendix III. A submission to implement label revisions will be required within 90 days of finalization of the re-evaluation decision.

The registrant of the technical grade active ingredient is required to submit data as a condition of continued registration under section 12 of the *Pest Control Products Act*. Appendix I lists data requirements.

For ATMD end-use products that contain more than one active ingredient under re-evaluation, registration status might change as a result of the re-evaluation of the remaining affected active ingredients.

7.0 Supporting Documentation

PMRA documents, such as Regulatory Directive DIR2001-03, and DACO tables can be found on Health Canada's website at healthcanada.gc.ca/pmra. PMRA documents are also available through the Pest Management Information Service.

The federal Toxic Substances Management Policy is available through Environment Canada's website at www.ec.gc.ca/toxics.

The USEPA RED document for ATMD is available on the USEPA Pesticide Registration Status page at www.epa.gov/pesticides/reregistration/status.htm

List of Abbreviations

a.i.	active ingredient
CAS	Chemical Abstracts Service
DACO	data code
IUPAC	International Union of Pure and Applied Chemistry
kg	kilogram(s)
K_{ow}	*n*-octanol–water partition coefficient
L	litre(s)
mg	milligram(s)
mL	mililitres
OECD	Organisation for Economic Co-operation and Development
pH	-log10 hydrogen ion concentration
PMRA	Pest Management Regulatory Agency
PPE	personal protective equipment
ppm	parts per million
PRVD	Proposed Re-evaluation Decision
RED	Reregistration Eligibility Decision
USEPA	United States Environmental Protection Agency

Appendix I Additional Data Requirements

The following data are required as a condition of continued registration under section 12 of the *Pest Control Products Act*. The registrant of 1-alkyl C6-C18 1,3-propane diamine is required to provide these data or an acceptable scientific rationale within the timeline specified in the decision letter the PMRA will send. Regulatory Directive DIR98-04, *Chemistry Requirements for the Registration of a Technical Grade of Active Ingredient or an Integrated System Product*, presents the guidance addressing the submittal of product-related analytical standards.

- Chemistry Requirements for the technical grade of active ingredient: DACO 2.0

Appendix II Registered Products Containing ATMD as of 12 February 2009

Registration Number	Marketing Class	Registrant	Product Name	Formulation	Guarantee (%)	Product Type
18939	C	NALCO CANADA COMPANY	EC 6222 A	Solution	44	Slimicide
18028	C	BAKER PETROLITE CORPORATION	X-CIDE 302 INDUSTRIAL LIQUID BACTERICIDE	Solution	21.2	Slimicide
19339	C	AKZO NOBEL CHEMICALS LTD.	ARMOHIB-654 OILFIELD BIOCIDE	Solution	20	Slimicide
19757	C	BAKER PETROLITE CORPORATION	MAGNACIDE 424 INDUSTRIAL BACTERICIDE	Solution	41.8	Slimicide
19863	C	NALCO CANADA COMPANY	6C01 SLIMICIDE	Solution	20	Slimicide
19943	C	CHAMPION TECHNOLOGIES LTD.	BACTRON K-48 OILFIELD MICROBIOCIDE	Solution	20	Slimicide
20422	C	MAGNACIDE 506 INDUSTRIAL BACTERICIDE	MAGNACIDE 506 INDUSTRIAL BACTERICIDE	Solution	37.5	Slimicide
20487	C	BAKER PETROLITE CORPORATION	CRONOX MEP-426 PACKER FLUID CORROSION INHIBITOR	Solution	6	Slimicide; material preservative
20502	C	AKZO NOBEL CHEMICALS LTD.	ARMOHIB B-101 OILFIELD BIOCIDE	Solution	32	Slimicide; material preservative
20519	C	BRENNTAG CANADA INC.	TRAVIS T-397 BIOCIDE	Solution	32	Slimicide; material preservative
20557	C	DREW CANADA, ASHLAND CANADA CORP.	CSW 850 COOLING WATER BIOCIDE	Solution	15	Slimicide
21796	C	NALCO CANADA COMPANY	EC 6223 A (FOR OIL FIELD WATER SYSTEMS)	Solution	10	Slimicide
24764	C	BAKER PETROLITE CORPORATION	X-CIDE 402 LIQUID BACTERICIDE	Solution	28.5	Slimicide
25184	C	CHAMPION TECHNOLOGIES LTD.	BACTRON K-71 OILFIELD MICROBICIDE	Solution	32	Slimicide

Registration Number	Marketing Class	Registrant	Product Name	Formulation	Guarantee (%)	Product Type
25195	C	CHAMPION TECHNOLOGIES LTD.	SULFLEX 7 OILFIELD BIOCIDE	Solution	32	Slimicide
26571	C	BRINE-ADD FLUIDS LTD.	CHEMCIDE OILFIELD BIOCIDE	Solution	20	Slimicide
26572	C	BRINE-ADD FLUIDS LTD.	CHEMCIDE PT OILFIELD BIOCIDE	Solution	32	Slimicide
28504	C	BRENNTAG CANADA INC.	BRENNTAG T-397 BIOCIDE	Solution	32	Material preservative; slimicide
29028	C	CARADAN CHEMICALS LTD.	C-5500	Solution	32	Material preservative; slimicide
29029	C	CARADAN CHEMICALS LTD.	C-5501	Solution	20	Slimicide
29067	C	CHEMICAL BY STERLING LIMITED	X-610	Solution	32	Material preservative; slimicide
18062	T	AKZO NOBEL CHEMICALS LTD.	DUOMEEN C (TECHNICAL GRADE LIQUID)	Liquid	100	Slimicide
25187	C	GUARDIAN CHEMICALS INC.	AQUAGUARD 690 OILFIELD BIOCIDE	Solution	32	Slimicide
25340	C	GUARDIAN CHEMICALS INC.	AQUAGUARD 6905	Solution	16	Slimicide

Appendix III Label Amendments for Products Containing Alkyl Trimethylenediamines

The label amendments presented below do not include all label requirements for individual end-use products, such as first aid statements, disposal statements, precautionary statements and supplementary protective equipment. Additional information on labels of currently registered products should not be removed unless it contradicts the label statements below.

A submission to request label revisions will be required within 90 days of finalization of the re-evaluation decision.

The labels of all end-use products in Canada must be amended to include the following statements to further protect workers and the environment.

- The following statements will be required to be added to the "**Precautions**" section:

  Wear goggles or face shield, chemical-resistant gloves, long pants, a long-sleeve shirt, and shoes and socks when handling.

- The following statements will be required to be added to the "**Direction for Use**" section:

  Apply the product using a closed delivery systems such as a dry coupling and/or metering pump.

- The following statements will be required to be added to the "**Environmental Hazards**" section:

  Toxic to birds.

  Toxic aquatic organisms.

  DO NOT discharge effluent containing this product into sewer systems, lakes, streams, ponds, estuaries, oceans or other waters.